Inspection Procedure

North American Standard Level VI Transuranic Waste and Highway Route Controlled Quantities of Radioactive Material

For more information, see the North American Standard Out-of-Service Criteria and Level VI Inspection Procedures Handbook.

1 Prepare Equipment

Ensure your radiation monitoring equipment meets minimum standards:

- Use instruments that read dose rates in the range of .001 mSv/hr to 10 mSv/hr or .1mrem/hr to 1000 mrem/hr.
- Ensure the radiation survey instrument has been calibrated within the past year in accordance with ANSI N323 (1978) and meets ANSI N13.4 (1971) durability standards and manufacturer's operational requirements.
- Operationally, check your radiation survey instrument in accordance with the following guidelines, specified by the manufacturer or state radiation control authority. WIPP-contracted trucks carry a Ludlum 14C. Place a Ludlum 14C into service as follows:
  - Install batteries; note (+) (-) polarity marks on the inside of the lid.
  - Turn on radiation survey instruments(s) to warm them up.
  - Install the cable on the instrument and detector probe.
  - Turn the instrument range switch to X1,000; depress the BAT switch. The meter should deflect to the battery check position of the meter scale.
  - Expose the internal detector to the radiation check source (if provided). The speaker (or headphones) should click with the audio switch in the "on" position.
  - Select a scale that will give a mid-range reading.
  - Place the external detector within 1/4 inch of the check source (if provided).
  - Compare the instrument reading with the calibration card (if equipped).

Note: There should be no more than a 10 percent + or - variation between the reading and the calibration card.

Note: Inspectors should review the instrument manufacturer's guidance on calibration.

- Conduct the background radiation survey and record the meter reading on the Level VI Inspection form.

2 Begin Radiation Survey of Vehicles/Packages

IMPORTANT! Do not approach vehicle until this portion of the Level VI Inspection is complete.

- Begin the radiation portion of the inspection at the driver's side of the power unit.
- With the instrument turned on, approach the driver's side of the power unit. Stop when you are 2 meters from the unit and take an instrument reading.

EMERGENCY PROCEDURES

If, at any time, the survey readings exceed those stated in Table 1 for exclusive use vehicles or non-exclusive use vehicles, immediately perform the following actions:

STOP! DO NOT CONTINUE INSPECTION.

- Have the driver come to you.
- Establish a "Hot Zone" per the Emergency Response Guidebook (ERG) or follow state procedures.
- Notify appropriate radiation health agency.
- Notify the shipper.
- Place the vehicle out of service.

Table 1

Summary of U.S. Department of Transportation Radiation Limits
(49 CFR 173.441 Exclusive use limits,
49 CFR 173.403 Definition of exclusive use)

MEASURING POINT	RATE LIMIT
Exclusive Use Vehicles	
2 meters (6.6 feet) from sides-enclosed trailer	.1 mSv/hr (10 mrem/hr)
2 meters (6.6 feet) from vertical plane of trailer edge (flatbed)	.1 mSv/hr (10 mrem/hr)
At contact on surface of side and top-enclosed trailer	2 mSv/hr (200 mrem/hr)
At contact on any surface of load (flatbed)	2 mSv/hr (200 mrem/hr)
On vertical plane of trailer edge (flatbed)	2 mSv/hr (200 mrem/hr)
Surface of bottom of trailer	2 mSv/hr (200 mrem/hr)
Package surface (enclosed trailer only)	10 mSv/hr (1000 mrem/hr)
Occupied area of vehicle	.02 mSv/hr (2 mrem/hr)
Non-Exclusive Use Vehicles	
1 meter (3.3 feet) from any surface of package	.1 mSv/hr (10 mrem/hr)
Package surface	2 mSv/hr (200 mrem/hr)

over

- If the radiation survey instrument readings are less than .1 mSv/hr (10 mrem/hr) at 2 meters (6.6 feet), continue with the inspection.
- Contact the driver, identify yourself and notify the driver of the inspection. Have the driver provide you with the shipping papers, then return to the vehicle.
- Determine exclusive/non-exclusive use shipment from shipping paper.
- Begin the radiation survey portion of the inspection. Remember, there are five primary radiation inspection points:
  - Vehicle radiation survey from 2 meters (6.6 feet) for exclusive use shipments or 1 meter (3.3 feet) for non-exclusive use shipments
  - In-cab radiation survey
  - Vehicle radiation survey of the trailer outer surface
  - Package/container surface radiation survey
  - Radiation survey of the bottom surface of the transport vehicle
- Conduct the vehicle radiation survey at the proper distance:
  - Measure and note the highest instrument reading and location from the vertical planes represented by the outer lateral surfaces of the transport vehicle (both sides, front and rear).
  - After subtracting background, record highest reading and location on the Level VI Inspection form.
  - Readings must not exceed .1 mSv/hr (10 mrem/hr) at any point.
- Conduct the in-cab radiation survey:
  - Measure and note the highest instrument reading and location from the driver's seat, passenger seat and any normally occupied area.
  - After subtracting background, record highest reading and location on the Level VI Inspection form.
  - Readings must not be greater than .02 mSv/hr (2 mrem/hr) in any normally occupied space, unless in a state or federal personal dosimetry program.
- Conduct the vehicle radiation survey of the transport trailer outer surface:
  - Start at the left front of the trailer. Move slowly and use the instrument with a continuous motion to monitor the outer surface of the entire trailer.
  - Keep the probe within 1 inch of the surface of the trailer.
  - After subtracting background, record highest reading and location on the Level VI Inspection form.
  - Reading must not exceed 2 mSv/hr (200 mrem/hr) at any point, including the upper and lower surfaces.
- Conduct the package surface radiation survey:
  - Start at the left side of the upper surface of the load (or personnel barrier).
  - Conduct the package survey in the same manner as the transport trailer outer surface.
  - Readings must not exceed 2 mSv/hr (200 mrem/hr) at any point.
- Conduct the radiation survey of the bottom of the transport vehicle:
  - Start at the left front of the transport vehicle.
  - Move slowly and use the instrument with a continuous motion to monitor the underside of the entire transport vehicle.
  - After subtracting background, record highest reading and location on the Level VI Inspection form.
  - Readings must not exceed 2 mSv/hr (200 mrem/hr) at any point.

3 Conduct the North American Standard Level I and HM/DG Inspections

- Complete the North American Standard Level I Inspection, noting any violations.
- Locate the violations in the CVSA North American Standard Out-of-Service Criteria; Level VI Inspection Procedures; and Out-of-Service Criteria for Commercial Highway Vehicles Transporting Transuranics and Highway Route Controlled Quantities (HRCQ) of Radioactive Materials. Verify out-of-service requirements.
- Complete the hazardous materials/dangerous goods (HM/DG) portion of the Level VI Inspection.
  - Verify HRCQ route plan/certificate of training (if applicable).
  - Verify that the isotopes match the shipping papers and labels and the proper labels are attached (White I, Yellow II, III, Fissile).
  - Verify that the Transport Index and/or CSI match the shipping papers and labels.
  - If HRCQ, verify that the carrier has an FMCSA hazmat safety permit.
  - If HRCQ, verify that the white warning background is behind the placards.
  - Verify that the carrier is in compliance with the operating authority requirements.

4 Complete the Inspection

- Return all documents to the driver and explain all paperwork.
- If vehicle(s) are placed out of service, place them in a suitable location; then place the out-of-service sticker(s) in the applicable location(s) on the vehicle(s).
- If, at the point of origin, a vehicle passes a "defect-free" inspection, place the CVSA Level VI decal in the upper corner of the passenger side windshield. If a CVSA Level VI decal is removed due to a Level I or Level VI out-of-service violation or if there was an equipment change enroute, another "defect-free" inspection is to be completed.
- If CVSA Level I decal has expired, remove the decal and issue a new CVSA Level I decal.